WHAT IS CLAIMED IS:

1. A transmitter for transmitting data to a receiver, comprising:

a frame generating section for generating at least one predetermined frame by performing at least an error detecting code generating process for data to be transmitted;

a frame dividing section for dividing the at least one frame generated by the frame generating section into a plurality of divided frames, based on a cycle of a burst error whose cyclical occurrence in a course of transmission is predictable; and

a transmission control section for generating a packet in which each of the plurality of divided frames obtained by the frame dividing section is copied at least once in one cycle of the burst error for transmission, and transmitting the packet to the receiver.

2. The transmitter according to claim 1, wherein

the frame generating section performs at least the error detecting code generating process for the data to be transmitted, and generates one frame of L length,

the frame dividing section divides the frame of L length generated by the frame generating section, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided

frames, and

the transmission control section generates a packet in which each of the n×L/T divided frames obtained by the frame dividing section is sequentially transmitted n times in one cycle of the burst error.

3. The transmitter according to claim 1, wherein

the frame generating section divides the data to be transmitted into m, which is a natural number, pieces of data, and generates m frames of L length by performing at least the error detecting code generating process for each of the m pieces of data to which division information indicating division order is further added,

the frame dividing section divides each of the m frames of L length generated by the frame generating section, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames, and

the transmission control section generates a packet in which each of the m×n×L/T divided frames obtained by the frame dividing section is discontinuously transmitted n/m times in one cycle of the burst error.

4. The transmitter according to claim 3, further comprising a frame storing section for storing the m frames, which

are generated by the frame generating section and divided by the frame dividing section, by copying each of the m frames n/m times in order from a first frame to an mth frame, and storing a matrix of divided frames with n rows and n×L/T columns, wherein

the transmission control section sequentially obtains the divided frame from the matrix of divided frames, which is stored in the frame storing section, by performing column-wise interlacing from a first row and first column to a n row and n×L/T column, and generates a packet including the divided frames in an order in which the divided frames are obtained.

5. The transmitter according to claim 3, wherein

when a request to retransmit a specific frame is received from the receiver, the transmission control section generates a packet in which the divided frames contained in the specific frame are sequentially transmitted n times in one cycle of the burst error.

6. The transmitter according to claim 1, wherein the frame generating section generates at least one predetermined frame by performing the error detecting code generating process and an error correcting code generating process for data to be transmitted.

7. A receiver for receiving data from a transmitter,

comprising:

a reception control section for receiving a packet, in which a same divided frame is copied at least once and transmitted, in one cycle of a burst error whose cyclical occurrence in a course of transmission is predictable, and sequentially distributing a plurality of divided frames contained in the packet, from a first divided frame, in a cyclical manner into a plurality of groups corresponding to the number of copies of the same divided frame;

a frame reconstructing section for reconstructing a plurality of frames by assembling the distributed divided frames with respect to each of the plurality of groups of the reception control section, and

a frame processing section for performing at least an error detecting process for each of the plurality of frames reconstructed by the frame reconstructing section, and processing data stored in a frame having no error as reception data.

8. The receiver according to claim 7, wherein

the reception control section receives a packet in which a same divided frame is sequentially transmitted n, which is an integer equal to or greater than two, times in one cycle of the burst error, and cyclically distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups,

the frame reconstructing section reconstructs n frames

by assembling the distributed divided frames with respect to each of the first to nth groups, and

the frame processing section performs at least the error detecting process for each of n frames reconstructed by the frame reconstructing section, and processes data stored in a frame having no error as reception data.

9. The receiver according to claim 7, wherein

the reception control section receives a packet in which m, which is a natural number, types of divided frames are discontinuously transmitted n/m times in one cycle of the burst error, and sequentially distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups in a cyclical manner,

the frame reconstructing section reconstructs n, which is an integer equal to or greater than two, frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the frame processing section performs at least the error detecting process for each of the n frames reconstructed by the frame reconstructing section, and processes data stored in a frame having no error as reception data.

10. The receiver according to claim 9, further comprising a data processing section for determining whether or

not the reception data processed by the data processing section includes all data transmitted by the transmitter, and requiring the transmitter to retransmit a frame including lost data, if any.

11. The receiver according to claim 7, wherein the frame processing section performs the error detecting process and an error correcting process for each of the plurality of frames reconstructed by the frame reconstructing section, and processes data stored in a frame having no error as reception data.

12. A communication device for performing data transmission and reception, wherein

a transmitter includes:

a frame generating section for generating at least one predetermined frame by performing at least an error detecting code generating process for data to be transmitted;

a frame dividing section for dividing the at least one frame generated by the frame generating section into a plurality of divided frames, based on a cycle of a burst error whose cyclical occurrence in a course of transmission is predictable; and

a transmission control section for generating a packet in which each of the plurality of divided frames obtained by the frame dividing section is copied at least once in one cycle of the burst error for transmission, and transmitting the packet to a receiver, and

the receiver includes:

a reception control section for receiving a packet from the transmission control section of another communication device, and cyclically distributing a plurality of divided frames contained in the packet, from a first divided frame, into a plurality of groups corresponding to the number of copies of each of the plurality of divided frames;

a frame reconstructing section for reconstructing a plurality of frames by assembling the distributed divided frames with respect to each of the plurality of groups of the reception control section; and

a frame processing section for performing at least an error detecting process for each of the plurality of frames reconstructed by the frame reconstructing section, and processing data stored in a frame having no error as reception data.

13. The communication device according to claim 12, wherein

the frame generating section performs at least the error detecting code generating process for the data to be transmitted, and generates one frame of L length,

the frame dividing section divides the frame of L length generated by the frame generating section, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided

frames,

the transmission control section generates a packet in which each of the n×L/T divided frames obtained by the frame dividing section is sequentially transmitted n times in one cycle of the burst error,

the reception control section receives a packet in which a same divided frame is sequentially transmitted n times in one cycle of the burst error, and cyclically distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups,

the frame reconstructing section reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the frame processing section performs at least the error detecting process for each of n frames reconstructed by the frame reconstructing section, and processes data stored in a frame having no error as reception data.

14. The communication device according to claim 12, wherein

the frame generating section divides the data to be transmitted into m, which is a natural number, pieces of data, and generates m frames of L length by performing at least the error detecting code generating process for each of the m pieces of data to which division information indicating division order is further

added,

the frame dividing section divides each of the m frames of L length generated by the frame generating section, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames, and

the transmission control section generates a packet in which each of the m×n×L/T divided frames obtained by the frame dividing section is discontinuously transmitted n/m times in one cycle of the burst error,

the reception control section receives a packet in which m types of divided frames are discontinuously transmitted n/m times in one cycle of the burst error, and sequentially distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups in a cyclical manner,

the frame reconstructing section reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the frame processing section performs at least the error detecting process for each of the n frames reconstructed by the frame reconstructing section, and processes data stored in a frame having no error as reception data.

15. The communication device according to claim 12, wherein

the frame generating section generates at least one predetermined frame by performing the error detecting code generating process and an error correcting code generating process for data to be transmitted, and

the frame processing section performs the error detecting process and an error correcting process for each of the plurality of frames reconstructed by the frame reconstructing section, and processes data stored in a frame having no error as reception data.

16. A communication method for performing data transmission and reception, comprising:

on a transmitting side,

a generating step of generating at least one predetermined frame by performing at least an error detecting code generating process for data to be transmitted;

a dividing step of dividing the at least one frame generated at the frame generating step into a plurality of divided frames, based on a cycle of a burst error whose cyclical occurrence in a course of transmission is predictable; and

a transmitting step of generating a packet in which each of the plurality of divided frames obtained at the frame dividing step is copied at least once in one cycle of the burst error for transmission, and transmitting the packet to a receiving side, and

on the receiving side,

a receiving step of receiving the packet transmitted from the transmitting step on the transmitting side, and cyclically distributing a plurality of divided frames contained in the packet, from a first divided frame, into a plurality of groups corresponding to a number of copies of each of the plurality of divided frames;

a reconstructing step of reconstructing a plurality of frames by assembling the divided frames distributed at the receiving step with respect to each of the plurality of groups; and

a processing step of performing at least an error detecting process for each of the plurality of frames reconstructed at the frame reconstructing step, and processing data stored in a frame having no error as reception data.

17. The communication method according to claim 16, wherein

the generating step performs at least the error detecting code generating process for the data to be transmitted, and generates one frame of L length,

the dividing step divides the frame of L length generated at the generating step, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames,

the transmitting step generates a packet in which each

of the n×L/T divided frames obtained at the dividing step is sequentially transmitted n times in one cycle of the burst error,

the receiving step receives a packet in which a same divided frame is sequentially transmitted n times in one cycle of the burst error, and cyclically distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups,

the reconstructing step reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the processing step performs at least the error detecting process for each of the n frames reconstructed at the frame reconstructing step, and processes data stored in a frame having no error as reception data.

18. The communication method according to claim 16, wherein

the generating step divides the data to be transmitted into m, which is a natural number, pieces of data, and generates m frames of L length by performing at least the error detecting code generating process for each of the m pieces of data to which division information indicating division order is further added,

the dividing step divides each of the m frames of L length generated at the generating step, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an

integer equal to or greater than two, into n×L/T divided frames,

the transmitting step generates a packet in which each of the m×n×L/T divided frames obtained at the dividing step is discontinuously transmitted n/m times in one cycle of the burst error,

the receiving step receives a packet in which m types of divided frames are discontinuously transmitted n/m times in one cycle of the burst error, and sequentially distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups in a cyclical manner,

the reconstructing step reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the processing step performs at least the error detecting process for each of the n frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as reception data.

19. The communication method according to claim 16, wherein

the generating step generates at least one predetermined frame by performing the error detecting code generating process and an error correcting code generating process for data to be transmitted, and

the processing step performs the error detecting process

and an error correcting process for each of the plurality of frames reconstructed at the frame reconstructing step, and processes data stored in a frame having no error as reception data.

20. A program executed in a transmitter and a receiver, which perform data transmission,

wherein the transmitter is caused to execute:

a generating step of generating at least one predetermined frame by performing at least an error detecting code generating process for data to be transmitted;

a dividing step of dividing the at least one frame generated at the generating step into a plurality of divided frames, based on a cycle of a burst error whose cyclical occurrence in a course of transmission is predictable; and

a transmitting step of generating a packet in which each of the plurality of divided frames obtained at the dividing step is copied at least once in one cycle of the burst error for transmission, and transmitting the packet to a receiving side, and

wherein the receiver is caused to execute:

a receiving step of receiving the packet transmitted from the transmitting step on a transmitting side, and cyclically distributing a plurality of divided frames contained in the packet, from a first divided frame, into a plurality of groups corresponding to a number of copies of each of the plurality

of divided frames;

a reconstructing step of reconstructing a plurality of frames by assembling the divided frames distributed at the receiving step with respect to each of the plurality of groups; and

a processing step of performing at least an error detecting process for each of the plurality of frames reconstructed at the reconstructing step, and processing data stored in a frame having no error as reception data.

21. The program according to claim 20, wherein

the generating step performs at least the error detecting code generating process for the data to be transmitted, and generates one frame of L length,

the dividing step divides the frame of L length generated at the generating step, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames,

the transmitting step generates a packet in which each of the n×L/T divided frames obtained at the dividing step is sequentially transmitted n times in one cycle of the burst error,

the receiving step receives a packet in which a same divided frame is sequentially transmitted n times in one cycle of the burst error, and cyclically distributes a plurality of divided frames contained in the packet, from a first divided frame,

into first to nth groups,

the reconstructing step reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the processing step performs at least the error detecting process for each of n frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as reception data.

22. The program according to claim 20, wherein

the generating step divides the data to be transmitted into m, which is a natural number, pieces of data, and generates m frames of L length by performing at least the error detecting code generating process for each of the m pieces of data to which division information indicating division order is further added,

the dividing step divides each of the m frames of L length generated at the generating step, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames,

the transmitting step generates a packet in which each of the m×n×L/T divided frames obtained at the dividing step is discontinuously transmitted n/m times in one cycle of the burst error,

the receiving step receives a packet in which m types of divided frames are discontinuously transmitted n/m times in

one cycle of the burst error, and sequentially distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups in a cyclical manner,

the reconstructing step reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the processing step performs at least the error detecting process for each of the n frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as reception data.

23. The program according to claim 20, wherein

the generating step generates at least one predetermined frame by performing the error detecting code generating process and an error correcting code generating process for data to be transmitted, and

the processing step performs the error detecting process and an error correcting process for each of the plurality of frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as reception data.

24. A storage medium in which a program executed in a transmitter and a receiver, which perform data transmission, is stored,

wherein the program causes the transmitter to perform:

a generating step of generating at least one predetermined frame by performing at least an error detecting code generating process for data to be transmitted;

a dividing step of dividing the at least one frame generated at the frame generating step into a plurality of divided frames, based on a cycle of a burst error whose cyclical occurrence in a course of transmission is predictable; and

a transmitting step of generating a packet in which each of the plurality of divided frames obtained at the dividing step is copied at least once in one cycle of the burst error for transmission, and transmitting the packet to a receiving side,

wherein the program causes the receiver to perform:

a receiving step of receiving the packet transmitted from the transmitting step on a transmitting side, and cyclically distributing a plurality of divided frames contained in the packet, from a first divided frame, into a plurality of groups corresponding to a number of copies of each of the plurality of divided frames;

a reconstructing step of reconstructing a plurality of frames by assembling the divided frames distributed at the receiving step with respect to each of the plurality of groups; and

a processing step of performing at least an error detecting process for each of the plurality of frames reconstructed at the reconstructing step, and processing data stored in a frame having no error as reception data.

25. The storage medium according to claim 24, wherein

the generating step performs at least the error detecting code generating process for the data to be transmitted, and generates one frame of L length,

the dividing step divides the frame of L length generated at the generating step, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames,

the transmitting step generates a packet in which each of the n×L/T divided frames obtained at the dividing step is sequentially transmitted n times in one cycle of the burst error,

the receiving step receives a packet in which a same divided frame is sequentially transmitted n times in one cycle of the burst error, and cyclically distributes a plurality of divided frames contained in the packet, from a first divided frame, into first to nth groups,

the reconstructing step reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the processing step performs at least the error detecting process for each of n frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as reception data.

26. The storage medium according to claim 24, wherein

the generating step divides the data to be transmitted into m, which is a natural number, pieces of data, and generates m frames of L length by performing at least the error detecting code generating process for each of the m pieces of data to which division information indicating division order is further added,

the dividing step divides each of the m frames of L length generated at the generating step, by a length T/n which is obtained by dividing the predicted burst error cycle T by n, which is an integer equal to or greater than two, into n×L/T divided frames,

the transmitting step generates a packet in which each of the m×n×L/T divided frames obtained at the dividing step is discontinuously transmitted n/m times in one cycle of the burst error,

the receiving step receives a packet in which m types of divided frames are discontinuously transmitted n/m times in one cycle of the burst error, and sequentially distributes a plurality of divided frames included in the packet, from a first divided frame, into first to nth groups in a cyclical manner,

the reconstructing step reconstructs n frames by assembling the distributed divided frames with respect to each of the first to nth groups, and

the processing step performs at least the error detecting process for each of the n frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as

reception data.

27. The storage medium according to claim 24, wherein the generating step generates at least one predetermined frame by performing the error detecting code generating process and an error correcting code generating process for data to be transmitted, and

the processing step performs the error detecting process and an error correcting process for each of the plurality of frames reconstructed at the reconstructing step, and processes data stored in a frame having no error as reception data.